



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,444	03/01/2004	Mark W. Casebolt	S486-0222PUS1	9990
67321	7590	02/12/2009	EXAMINER	
BIRCH, STEWART, KOLASCH & BIRCH, LLP			NGUYEN, JENNIFER T	
PO Box 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2629	
MAIL DATE		DELIVERY MODE		
02/12/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/788,444	<b>Applicant(s)</b> CASEBOLT ET AL.
	<b>Examiner</b> JENNIFER T. NGUYEN	<b>Art Unit</b> 2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 17 September 2008.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,2,4-9,11-18,20,21 and 23-29 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 4 and 20 is/are allowed.  
 6) Claim(s) 1,2,5-9,11,17,18,21,23 and 29 is/are rejected.  
 7) Claim(s) 12-16 and 24-28 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date _____
2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-548)	5) <input type="checkbox"/> Notice of Informal Patent Application
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

1. This Office action is responsive to amendment filed 09/17/08.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6-9, 11, 18, 21, 23, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliver et al. (Patent No.: US 6,455,840) in view of Gordon et al. (Patent No.: US 6,995,748).

Regarding claims 1 and 18, Oliver teaches a computer input device (i.e., mouse 1, fig. 1), comprising:

an electronic imager (i.e., optical navigation 2) positioned to create images of portions of a surface (5) moving relative to the imager;

an illumination source (i.e., LED 3) positioned to illuminate the portions of the surface imaged by the imager; and

at least one controller (i.e., controller 7) coupled to the imager and the illumination source and configured to:

selectively activate the illumination source (3),

receive the images from the imager (2),

determine, based on at least some of the images, an imager velocity relative to the surface,

activate the illumination source (3) at one of at least three activation rates (i.e., a maximal sampling rate, a lower sampling rate, a still lower sampling rate...) when the imager is moving relative to the surface and imager velocity is being determined, and

select one of the at least three activation rates based at least in part upon the imager velocity (col. 3, lines 4-22, col. 5, lines 18-48).

Oliver does not specifically teach select one of the activation rates based at least in part upon the imager acceleration.

Gordon teaches select one of the activation rates based at least in part upon the imager acceleration (col. 5, line 35-36, lines 43-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the imager acceleration as taught by Gordon in the system of Oliver in order to control the illumination source more accurately.

Regarding claims 2 and 9, Oliver further teaches the computer input device is a battery-powered, optically-tracking computer mouse (col. 2, lines 65-67).

Regarding claims 6 and 7, Oliver teaches the controller is further configured to vary the illumination source activation rate between a reduced standby rate and one of the at least three rates (col. 5, lines 18-48). Gordon teaches a proximity detector (inherent in optical fingerprint sensing pointing device, col. 8, lines 18-19), and wherein the controller is further configured to vary the illumination source activation rate based at least in part on an output of the proximity detector (col. 7, line 55 to col. 8, line 19).

Regarding claims 8 and 21, Oliver teaches a computer input device, comprising:

- an electronic imager (2) positioned to create images of portions of a surface moving relative to the imager;
- an illumination source (3) positioned to illuminate the portions of the surface imaged by the imager; and

at least one controller (7) coupled to the imager and the illumination source and configured to:

- selectively activate the illumination source (3),
- receive the images from the imager (2),
- determine, based on a first set of images received from the imager, an imager velocity relative to the surface and relative to one of three predetermined velocity levels (i.e., zero to one inch per second, one to three inches per second, three to nine inches per second, and above), and

estimate an imager displacement relative to the surface based on the imager velocity and an elapsed time since movement from a position corresponding to one or more of the images of the first set (i.e., fixed period) (col. 3, lines 4-22, col. 5, lines 18-48, col. 6, lines 23-26).

Oliver does not specifically teach select one of the activation rates based at least in part upon the imager acceleration.

Gordon teaches select one of the activation rates based at least in part upon the imager acceleration (col. 5, line 35-36, lines 43-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the imager acceleration

as taught by Gordon in the system of Oliver in order to control the illumination source more accurately.

Regarding claims 11 and 23, Oliver teaches the controller is further configured to:

determine a revised imager velocity and revised imager acceleration based on a second set of images created subsequent to the expiration of  $\Delta t$ ,

determine a revised time period  $\Delta t'$  based on at least one of the revised velocity and the revised acceleration, and

estimate imager displacement relative to the surface at each of a second plurality of times during  $\Delta t'$ , wherein each of said estimates is based on the revised imager velocity and a different amount of time elapsed since movement from a position corresponding to one or more of the images of the second set (col. 6, lines 41-59 of Gordon).

Regarding claim 29, Oliver teaches said selectively activating comprises selectively activating a light emitting diode (col. 5, lines 5-15).

4. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliver et al. (Patent No.: US 6,455,840) in view of Gordon et al. (Patent No.: US 6,995,748) and further in view of Cambridge (Patent No.: US 5,162,781).

Regarding claims 5 and 17, the combination of Oliver and Gordon teaches the controller is further configured to vary the illumination source activation rate based on the imager velocity, the imager acceleration and the at least one user profile parameter (col. 5, lines 45-48 of Oliver).

The combination of Oliver and Gordon does not specifically teach a memory having at least one user profile parameter stored thereon, and wherein the controller is further configured to vary luminance source activation rate based on the at least one user profile parameter.

Cambridge teaches a memory having at least one user profile parameter stored thereon, and wherein the controller is further configured to vary different modes of a movement sensitive device based on the at least one user profile parameter (col. 3, lines 20-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the user profile parameter as taught by Cambridge in the system of the combination of Oliver and Gordon in order to save power consumption of the device in different computer applications.

5. Claims 12-16 and 24-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 4 and 20 are allowed.

7. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER T. NGUYEN whose telephone number is 571-272-7696. The examiner can normally be reached on Mon-Fri: 9:00am-5:30pm.

Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J. T. N./  
Examiner, Art Unit 2629

/Richard Hjerpe/  
Supervisory Patent Examiner, Art Unit 2629